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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MCCLELLAND, KIMBERLY KEIL

ART UNIT	PAPER NUMBER
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1734

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/05/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/05/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/552,470	BARTOLI ET AL.	
	Examiner	Art Unit	
	Kimberly K. McClelland	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/7/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Objections

2. Claim 9 is objected to because of the following informalities: The term "polyacrilic" should be changed to "polyacrylic". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for polyester polyol isocyanate in solvent, does not reasonably provide enablement for polyester polyisocyanate. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

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Polyester polyisocyanate does not appear in the current specification. Clarification is required.

5. Claim 8 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a resin not etchable by NaOH, does not reasonably provide enablement for a non-etchable NaOH resin. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. Non-etchable NaOH resin is not disclosed in the current specification. Clarification is required.

6. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. As to claim 1, the limitation "said web" in step (f). There is insufficient antecedent basis for this limitation in the claim. The limitation "the web" in step (f). There is insufficient antecedent basis for this limitation in the claim. The limitation "the support layer" in step (i). There is insufficient antecedent basis for this limitation in the claim. Also, the phrase, "corresponding to specific requirements for a minimum coefficient of retroreflection (cd/lx.m^2) indicated by European Standard EN 471/1994 (related to high visibility warning clothing) and/or EN 13356/2001 (related to visibility accessories for non-professional use)" are unclear. It is unclear if the term "corresponding" requires an actual reflectivity value. The term "corresponding" in claim 1 is a relative term which

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renders the claim indefinite. The term "corresponding" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Furthermore, reference to specific standards do not indicate actual retro-reflection values, as these values can change. The phrase "a depth averaging around 35-40 percent" is also indefinite. The term "averaging around" in claim 1 is a relative term which renders the claim indefinite. The term "averaging around" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

8. As to claim 8, the limitation "the transfer image" in line 3. There is insufficient antecedent basis for this limitation in the claim. Also, the term "NaOH resin" is unclear. Resins are well known to be organic polymers or polymeric precursors. NaOH is a base. Examiner assumes for the purposes of examination that the resin is thermoplastic (See claim 9) and is non-etchable by NaOH.

9. As to claim 9, the limitation "the thermoplastic resin" in line 3. There is insufficient antecedent basis for this limitation in the claim.

10. As to claim 10, the limitation "the base transfer non-etchable printing" in line 3. There is insufficient antecedent basis for this limitation in the claim.

11. As to claim 11, the limitation "the transfer printed base" in line 3. There is insufficient antecedent basis for this limitation in the claim. Also, the term, "Decotrans" is indefinite. If a trademark or trade name is used in a claim as a limitation to identify or

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describe a particular material or product, the claim does not comply with the requirements of the 35 U.S.C. 112, second paragraph. *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. In fact, the value of a trademark would be lost to the extent that it became descriptive of a product, rather than used as an identification of a source or origin of a product. Thus, the use of a trademark or trade name in a claim to identify or describe a material or product would not only render a claim indefinite, but would also constitute an improper use of the trademark or trade name. See MPEP 2173.05(r).

12. As to claim 12, the term, "is replaced by" is unclear. It is unclear how a transfer pattern may be replaced by a silk-screen printing or roll printing. For the purposes of examination, examiner assumes the phrase is meant to indicate "the non-etchable transfer pattern is formed by".

13. As a note, applicant is reminded they need to explicitly point out where support for all the newly claimed features comes from as required by MPEP 5714.02 and j2163.06. See 37 CFR 1.111.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-3, 6, and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,416,856 to Crandall in view of U.S. Patent No. 5,620,775 to LaPerre, U.S. Patent No. 5,514,441 to Pohto et al., U.S. Patent No. 6,416,188 to Shusta et al., and U.S. Patent No. 6,355,302 to Vandenberg et al.

16. With respect to claim 1, Crandall discloses a method of making a retroreflective article, including providing a carrier sheet with an adhesive on the carrier (column 7, lines 33-38); partially embedding onto the adhesive a monolayer of transparent glass microspheres having a refractive index between about 1.4 and about 2.7 (column 6, lines 1-3); coating a thin layer of a two-component polyurethane resin (column 3, lines 29-44); applying a specularly reflective mirror of aluminum by vacuum deposition; printing a non-etchable pattern onto the aluminum layer (column 6, lines 10-35); applying two layers of dielectric mirror (column 6, lines 36-67); coating a polyurethane binder layer and laminate with a textile base (column 7, line 65-column 8, line 13); stripping away the support layer (column 7, lines 61-63). However, Crandall does not disclose embedding onto the adhesive a monolayer of transparent glass microspheres to a depth averaging around 35-40 percent of their average diameters; applying the specularly reflective aluminum over the polyurethane resin; printing a non-etchable pattern onto the aluminum layer; passing said web material through a demetallization bath of sodium hydroxide and a washing station to remove etchable, non-protected surface and drying the web; or applying, by a vacuum process, two layers of dielectric mirror.

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17. LaPerre discloses a method of making a glass microsphere coated article, including embedding onto the adhesive a monolayer of transparent glass microspheres to a depth averaging around 35-40 percent of their average diameters (column 4, lines 21-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the range of embedding depths taught by LaPerre in the method of making a retroreflective article disclosed by Crandall. The motivation would have been to enhance the desired texture and appearance to the resulting article (column 3, lines 38-50).

18. Pohto et al. discloses a method of making retroreflective sheeting, including applying the specularly reflective aluminum(14) over the polyurethane resin (13; See Figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to applying the polyurethane resin prior to depositing the aluminum layer as taught by Pohto et al. in the method of making a retroreflective article disclosed by Crandall. The motivation would have been to provide the desired focal length between the beads and the reflective surface (column 1, lines 38-40).

19. Shusta et al. discloses a method of making retroreflective appliques, including it is known in the art to apply by a vacuum process, two layers of dielectric mirror (column 5, lines 54-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the dielectric mirror coatings of Crandall using the vacuum process taught by Shusta et al. The motivation would have been to create uniform even coatings.

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20. Vandenberg et al. discloses a method of high performance retroreflective fabric, including printing a non-etchable pattern onto the aluminum layer, passing said web material through a demetallization bath of sodium hydroxide and a washing station to remove etchable, non-protected surface and drying the web (column 2, lines 27-39; and column 5, lines 46-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the binding and etching steps taught by Vandenberg et al. with the method of making a retroreflective article disclosed by Crandall. The motivation would have been to remove unwanted portions of the aluminum layer (column 5, lines 57-62).

21. As to claim 2, Crandall discloses the carrier sheet has an heat-softenable adhesive layer on the carrier (column 7, lines 24-28).

22. As to claim 3, Crandall discloses an auto-adhesive layer on a carrier sheet (column 7, lines 24-28). However Crandall does not disclose the carrier sheet is an auto-adhesive layer supported by a polymer backing.

23. LaPerre discloses a method of making a glass microsphere coated article, including it is known in the art that polymeric films are functional equivalents to paper backings (column 8, lines 34-43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the art-recognized equivalent polymer film taught by LaPerre for the paper backing in the method of making a retroreflective article disclosed by Crandall.

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24. As to claim 6, Crandall discloses the polyurethane resin used for coating the glass web is a water-dispersion and the curing agent is an aliphatic poly-isocyanate (column 4, lines 33-35).

25. As to claim 8, Crandall does not disclose the transfer image used for printing the coated microspheres is made with a non-etchable resin.

26. Vandenberg et al. discloses a method of high performance retroreflective fabric, including the transfer image used for printing the coated microspheres is made with a non-etchable resin (column 5, lines 46-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the binding and etching steps taught by Vandenberg et al. with the method of making a retroreflective article disclosed by Crandall. The motivation would have been to remove unwanted portions of the aluminum layer (column 5, lines 57-62).

27. As to claim 9, Crandall does not disclose the thermoplastic resin used for the printed base is a polyurethane, a polyamide or a polyacrylic polymer.

28. Vandenberg et al. discloses a method of high performance retroreflective fabric, including the printed base is a polyurethane, a polyamide or a polyacrylic polymer (column 4, lines 28-29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the binding and etching steps taught by Vandenberg et al. with the method of making a retroreflective article disclosed by Crandall. The motivation would have been to remove unwanted portions of the aluminum layer (column 5, lines 57-62).

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29. As to claim 10, Crandall discloses the base transfer non-etchable printing is a release paper, a polypropylene or polyester foil (column 8, lines 8-12).

30. As to claim 11, the requirement of a trademarked material Decotrans® is broad and provides no new limitations to the current invention. The claimed material for the transfer printed base falls within the scope of Crandall (column 8, lines 8-12).

31. As to claim 12, Crandall does not disclose the non-etchable transfer pattern is replaced by a silk-screen printing or roll printing on the reflective aluminum layer.

32. Vandenberg et al. discloses a method of high performance retroreflective fabric, including the non-etchable transfer pattern is replaced by a silk-screen printing or roll printing on the reflective aluminum layer (column 8, lines 28-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the binding and etching steps taught by Vandenberg et al. with the method of making a retroreflective article disclosed by Crandall. The motivation would have been to remove unwanted portions of the aluminum layer (column 5, lines 57-62).

33. As to claim 13, Crandall discloses the transparent dielectric mirror is a layer of aluminum sodium fluoride (NaHAIF₆) overlaid by a layer of zinc sulfide (ZnS; column 7, lines 4-15).

34. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,416,856 to Crandall in view of U.S. Patent No. 5,620,775 to LaPerre, U.S. Patent No. 5,514,441 to Pohto et al., U.S. Patent No. 6,416,188 to Shusta et al.,

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and U.S. Patent No. 6,355,302 to Vandenberg et al. as applied to claims 1-3, 6, 8-10, and 12-13 above, and further in view of U.S. Patent No. 6,592,700 to Wang et al.

35. With respect to claim 4, Crandall discloses the polyurethane resin is a reaction product of a polyether polyol having a number molecular weight of at least 2,000 and a polyisocyanate (See Abstract).

36. Wang et al. disclose a method of producing retro-reflective sheets, including polyester polyols are functionally equivalent to polyether polyols when producing polyurethane resins (column 2, lines 48-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the art-recognized equivalent polyester polyol taught by Wang et al. for the polyether polyol disclosed by Crandall.

37. As to claim 7, Crandall discloses the polyurethane resin is a reaction product of a polyether polyol having a number molecular weight of at least 2,000 in solvent and a polyisocyanate (column 10, lines 16-32).

38. Wang et al. disclose a method of producing retro-reflective sheets, including polyester polyols are functionally equivalent to polyether polyols when producing polyurethane resins (column 2, lines 48-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the art-recognized equivalent polyester polyol taught by Wang et al. for the polyether polyol disclosed by Crandall.

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39. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,416,856 to Crandall in view of U.S. Patent No. 5,620,775 to LaPerre, U.S. Patent No. 5,514,441 to Pohto et al., U.S. Patent No. 6,416,188 to Shusta et al., U.S. Patent No. 6,355,302 to Vandenberg et al., and further in view of U.S. Patent No. 6,592,700 to Wang et al. as applied to claim 4 above, and further in view of applicant's admitted prior art.

40. With respect to claim 5, Crandall does not disclose the dry polyurethane resin on the glass beads is less than about 3 g/sqm of dry substance.

41. Pohto et al. discloses the thickness of the space coat layer is determined as a function of the index of refraction and the average diameter of the microspheres and the index of refraction of the space coat (column 11, lines 10-13). Applicant's admitted prior art discloses it is known to use a polyurethane space coat with a thickness of less than about 3 g/sqm (page 5, lines 6-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the basis weight of 3 g/sqm of polyurethane resin, as disclosed by applicant in the method of Crandall. Pohto et al. discloses this value is determined by routine experimentation given certain parameters of the article. The motivation would have been to obtain the desired focal length of the article (Pohto et al.; column 1, lines 38-40). More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69

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App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly K. McClelland whose telephone number is (571) 272-2372. The examiner can normally be reached on 8:00 a.m.-5 p.m. Mon-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris A. Fiorilla can be reached on (571)272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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